Shorter Sharper Assessments
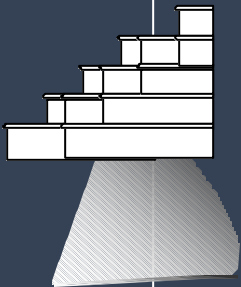## A proposal for a
CMMI� Class B assessment method

Winifred Menezes and Annie Combelles

Q-Labs

Q-Labs

What is an Assessment?

- Compare the development practices in an organization with a reference model
e.g the CMMI

- The purpose could be either
    - process improvement, i.e.
    Look for strengths, weaknesses and improvement opportunities
    - winning a contract, i.e.
    get a maturity level rating or capability profile

Assessment Principles

- Start with an appraisal reference model.

- Use a formalized appraisal process.

- Involve senior management as appraisal sponsor.

- Focus the appraisal on the sponsors business objectives

- Observe strict confidentiality and non-attribution of data.

- Approach the appraisal collaboratively.

- Focus on follow-on activities and decision-making based upon the appraisal results.

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Assessments
Class A

- ## Characteristics

  - Comprehensive, Formal

- ## Advantages

  - Robust method, Consistent, repeatable results, Objective view

- ## Team leader qualifications

  - Experienced

- ## Team size

  - 4-10 + lead assessor

- ## Effort/person

  80 - 120 hours

ARC, V1.0 Aug. 2000

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Assessments
Class B

- **Characteristics**
  - Initial assessment, Partial assessment, Self assessment

- **Advantages**
  - Less comprehensive, Less expensive

- **Team leader qualifications**
  - Moderately experienced

- **Team size**
  - 1- 6 + lead assessor

- **Effort/person**
  - 40 - 80 hours

ARC, V1.0 Aug. 2000

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Assessments
Class C

- **Characteristics**
    - Quick look at specific areas

- **Advantages**
    - Little training needed

- **Team leader qualifications**
    - Moderate + novice

- **Team size**
    - 1-2 + lead assessor

- **Effort/person**
    - 10 - 20 hours

ARC, V1.0 Aug. 2000

CMMI class B appraisal method

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Differences between appraisal classes

	Class A	Class B	Class C
Amount of objective evidence	High	Medium	Low
Ratings Generation	Yes	No	No
Resources needed	High	Medium	Low
15504 conformance	Yes	No	No
Team size	Large	Medium	Small
Appraisal team leader requirements	Lead appraiser (LA)	LA or person trained and experienced	Person trained and experienced

Denmark – France – Germany – Ireland – Norway – Sweden – UK – USA
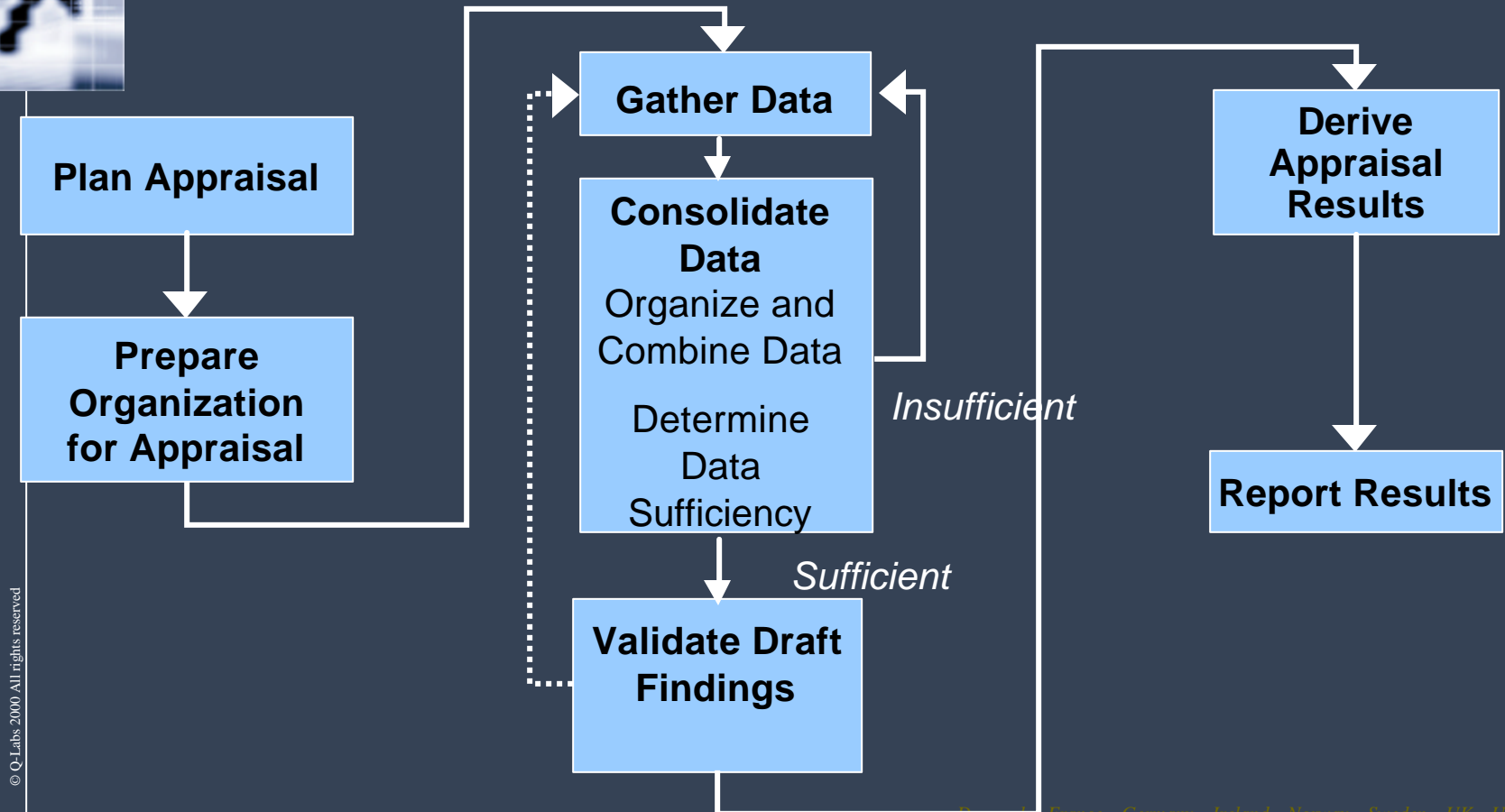
ARC, V1.1 draft

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Key differences between appraisal classes

- The degree of confidence in the appraisal outcomes

- The generation of ratings

- Appraisal cost and rating

Appraisal Activities (Simplified)

```
Plan Appraisal
      │
      ▼
Prepare
Organization
for Appraisal
```

```
Gather Data
      │
      ▼
Consolidate
Data
Organize and
Combine Data

Determine
Data
Sufficiency     Insufficient

      │ Sufficient
      ▼
Validate Draft
Findings
```

```
Derive
Appraisal
Results
      │
      ▼
Report Results
```

CMMI class B appraisal method

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Appraisal Activities (Simplified)

Plan Appraisal

Prepare Organization for Appraisal

Gather Data

Consolidate Data

Organize and Combine Data

Determine Data Sufficiency

Insufficient

Sufficient

Prepare Draft Findings

Derive Appraisal Results

Report Results

Dependent on Appraisal Class

Q-Labs

Appraisal Activities (Simplified)

Gather Data

A: Multiple sources
B: At least two sources
C: At least one source

Insufficient

Plan Appraisal

Consolidate Data

Organize and
Combine Data

Determine
Data Sufficiency

Derive
Appraisal
Results

Prepare
Organization
for Appraisal

Sufficient

Prepare Draft
Findings

Report Results

Dependent on Appraisal Class

Q-Labs

Appraisal Activities (Simplified)

Gather Data

Consolidate Data

Organize and
Combine Data

Determine
Data Sufficiency

A: Consensus, accurate,
corroborated, sufficient
B: Consensus, accurate,
corroborated
C: Accurate

Plan Appraisal

Prepare
Organization
for Appraisal

Insufficient

Derive
Appraisal
Results
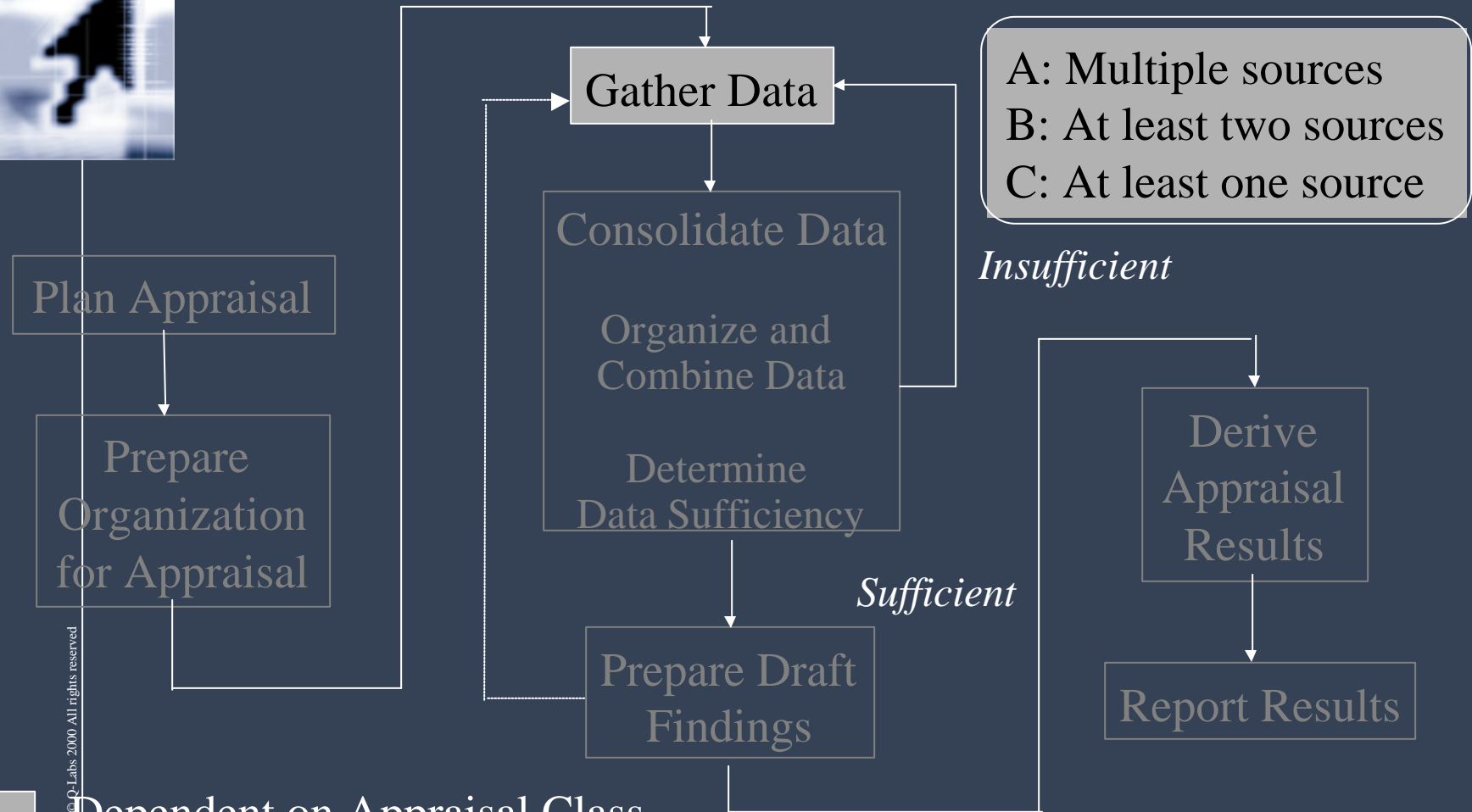
Sufficient

Prepare Draft
Findings

Report Results

Dependent on Appraisal Class

Q-Labs

Appraisal Activities (Simplified)

Gather Data

Consolidate Data

Organize and
Combine Data

Determine
Data Sufficiency

Insufficient

Plan Appraisal

Prepare
Organization
for Appraisal

Derive
Appraisal
Results

Sufficient

Prepare Draft
Findings

Report Results

B, C: Optional

Dependent on
Appraisal Class

CMMI class B appraisal method

Q-Labs

Appraisal Activities (Simplified)

Gather Data

Consolidate Data

Organize and
Combine Data

Determine
Data Sufficiency

B, C: No rating

Insufficient

Plan Appraisal

Prepare
Organization
for Appraisal

Derive
Appraisal
Results

Sufficient

Prepare Draft
Findings

Report Results
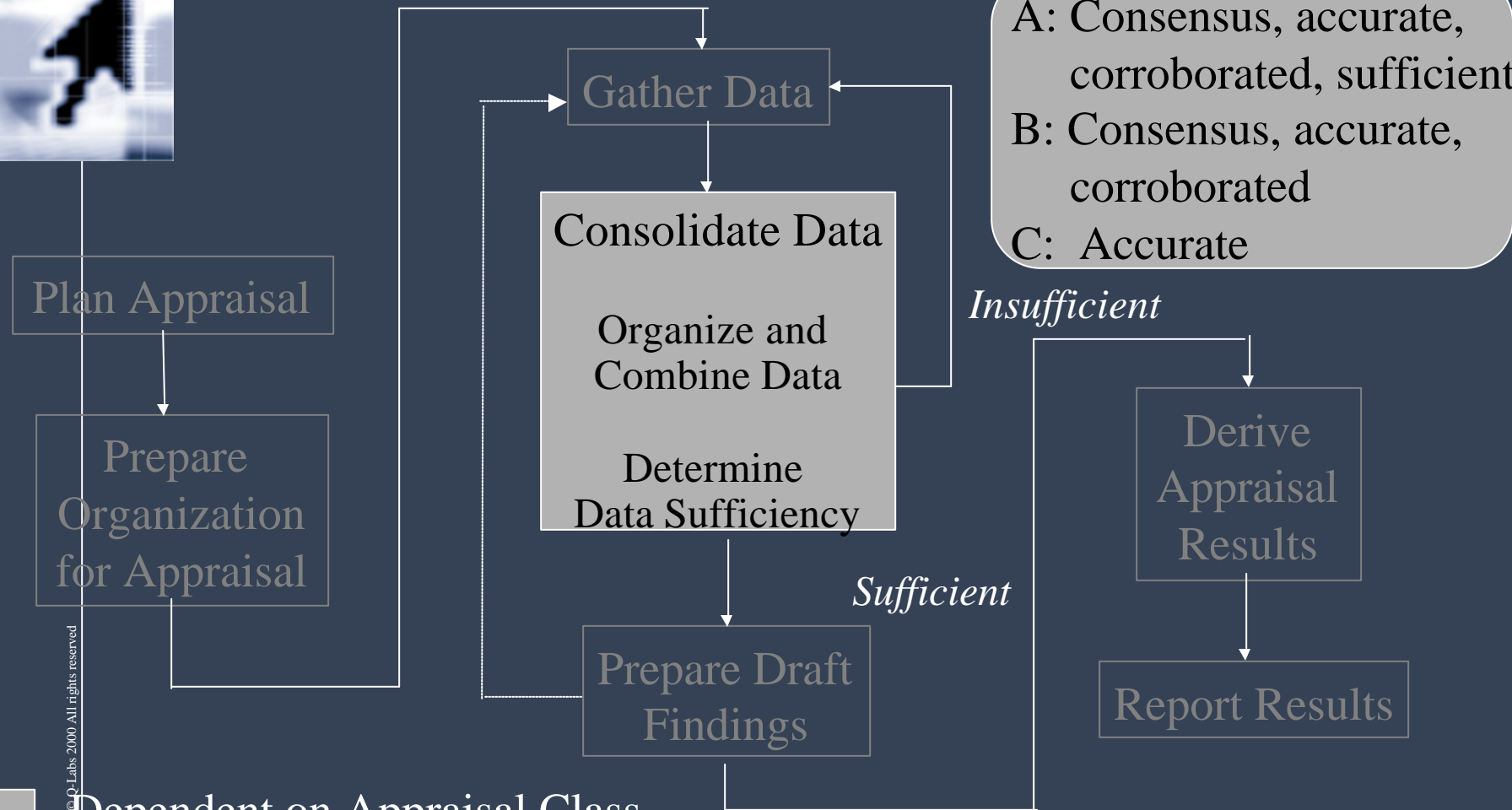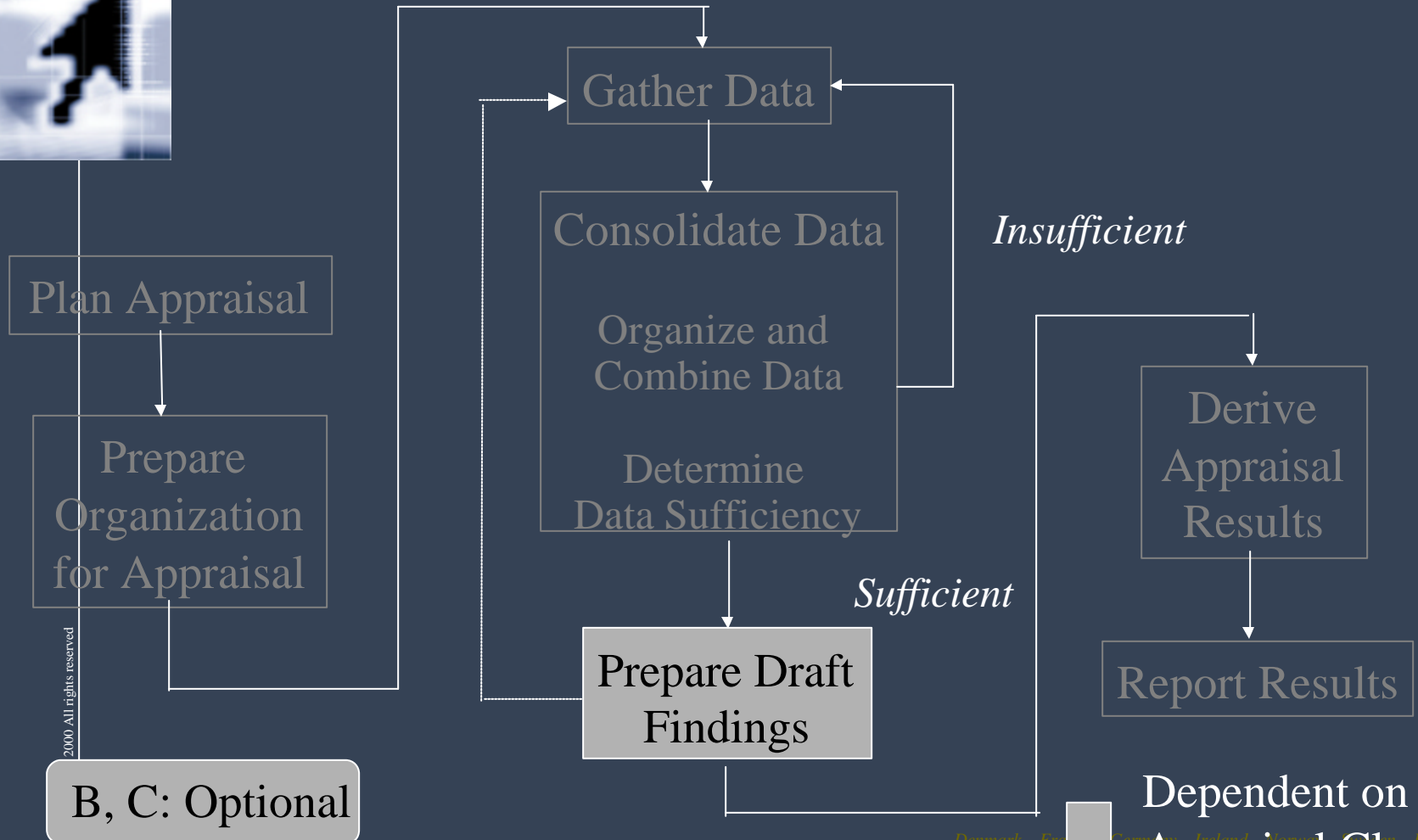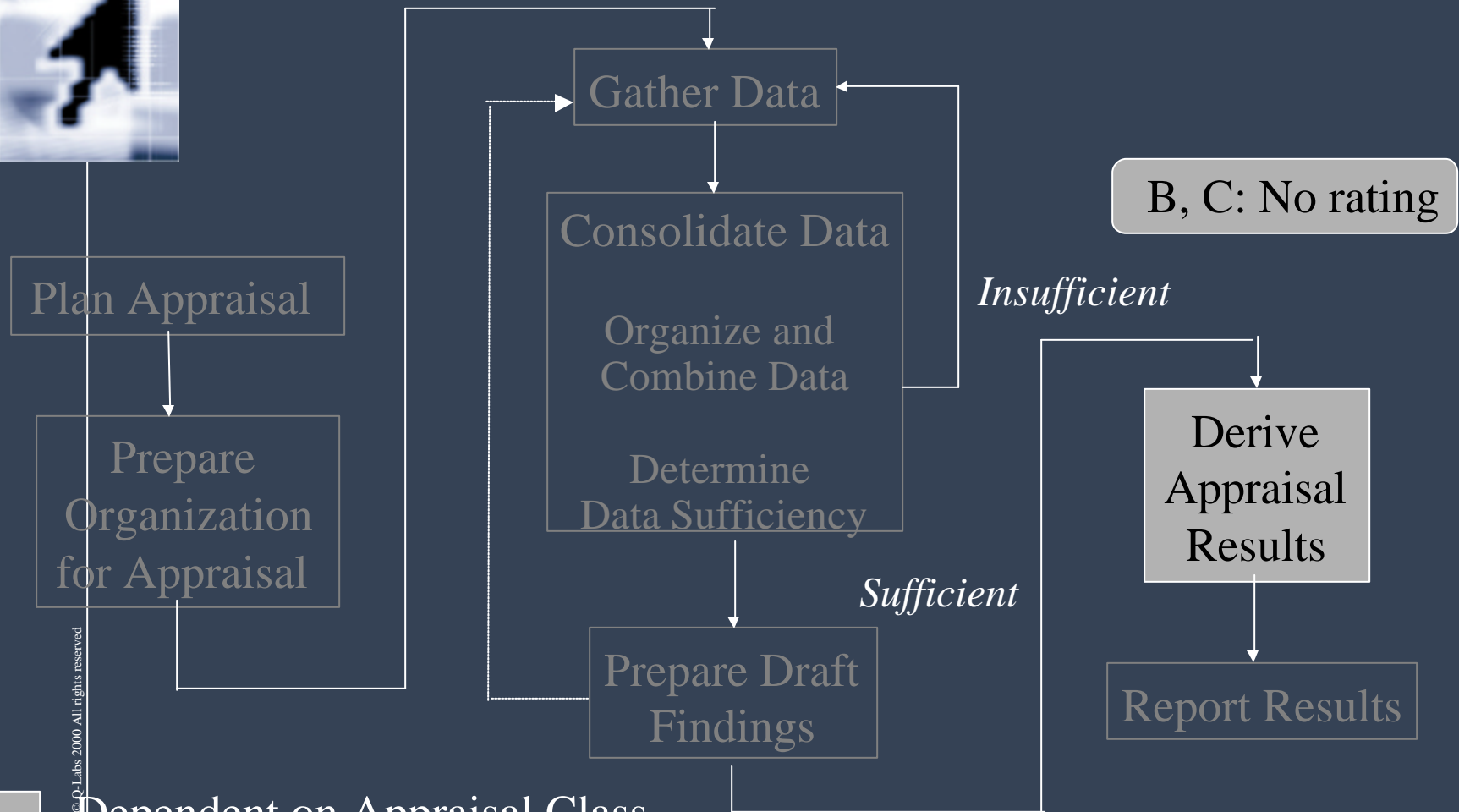
Dependent on Appraisal Class

Q-Labs

Checkpointing

A method to:

- **Bridge the gap between PI and business**

- **Focus on those areas which are crucial**
    - **products**
    - **technologies**
    - **services**
    - **key functions**

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Major Characteristics

- **Critical areas**

- **Software Boundaries**

- **A diverse Team**

- **Results for Individual Unit**

- **Aggregated Results for multiple Units**

CMMI class B appraisal method

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The Checkponting method

Business Objectives focused

Not

Conformance focused

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Business performance

External view

Market shares, customer satisfaction,

Internal needs exist: Management of Skills & Resources, Risks Management
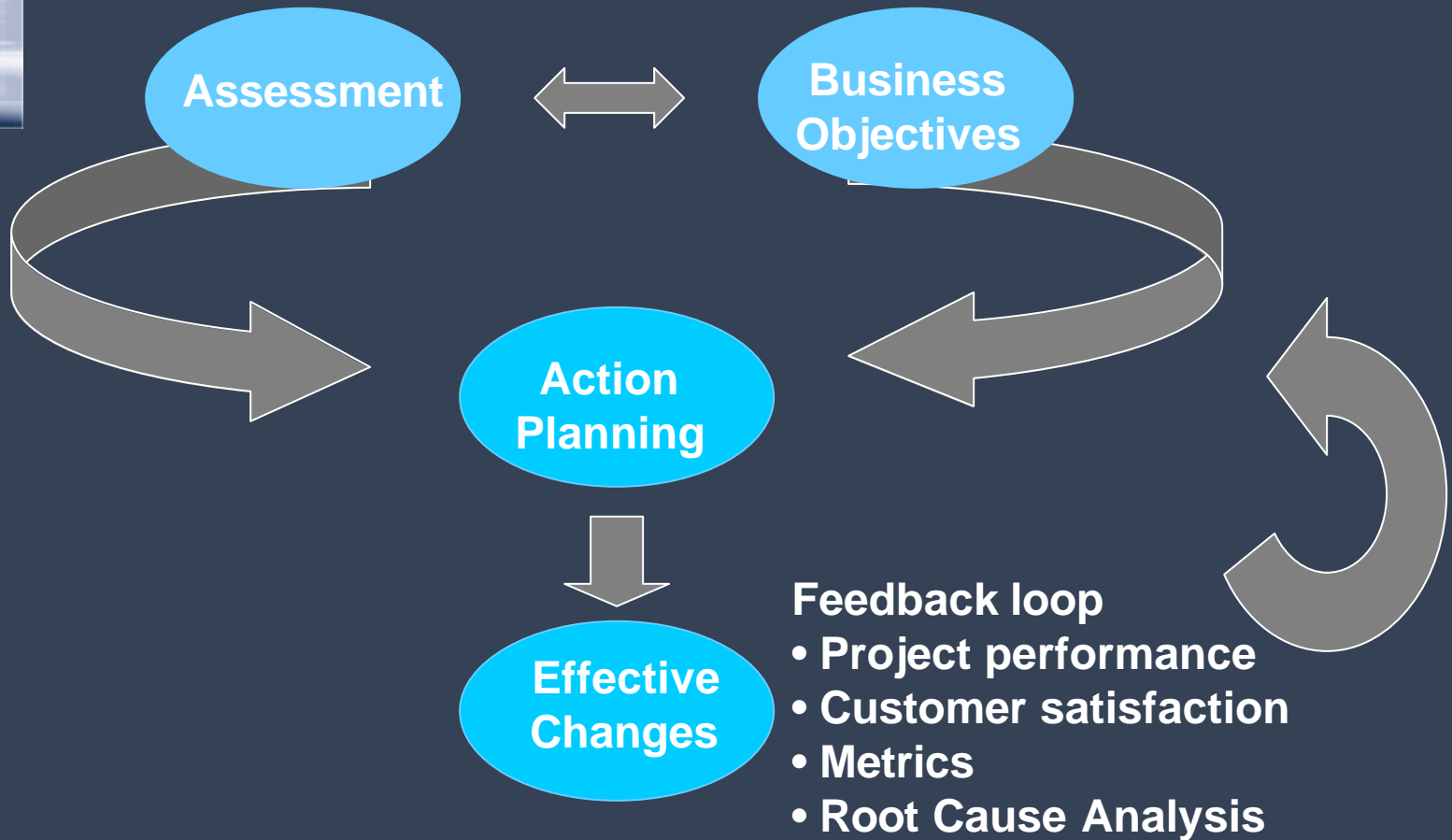
Internal view

Profit and loss, people satisfaction, growth

Customers expect that state of the art processes and technologies are employed.

- to improve competitiveness (productivity)
- to expand market share
- to extend market penetration
- to better support the customers (real need)
- to be more profitable

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Sustainable Change Means Focusing on Business Objectives

Assessment ⟷ **Business Objectives**

Action Planning

Effective Changes

Feedback loop
- **Project performance**
- **Customer satisfaction**
- **Metrics**
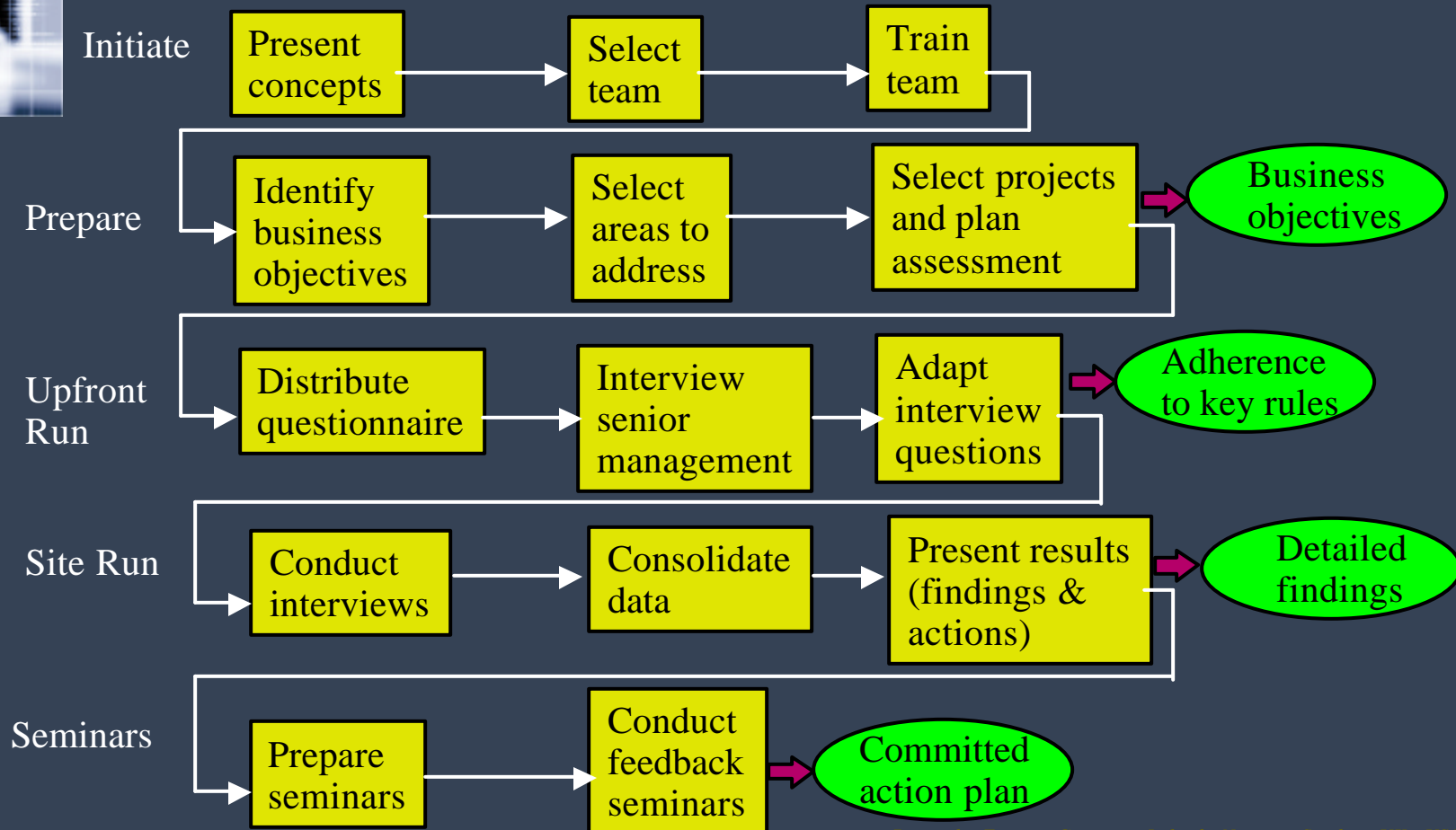- **Root Cause Analysis**

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Using the CMMI with a business perspective

■ The gap between the needs expressed in the business goals and the existing state of practices,

■ The level of achievement of CMMI PA goals;

■ Previous assessment results,

■ The appropriateness of the ongoing improvements, (their suitability to business)

■ Performance goals, any difficulty or adaptation/modification necessary, possibly some Return on Investment (ROI)

■ Trends.

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The Checkpointing Process

Initiate

| Present concepts | → | Select team | → | Train team |

Prepare

| Identify business objectives | → | Select areas to address | → | Select projects and plan assessment | ⇒ | **Business objectives** |

Upfront Run

| Distribute questionnaire | → | Interview senior management | → | Adapt interview questions | ⇒ | **Adherence to key rules** |

Site Run

| Conduct interviews | → | Consolidate data | → | Present results (findings & actions) | ⇒ | **Detailed findings** |

Seminars

| Prepare seminars | → | Conduct feedback seminars | ⇒ | **Committed action plan** |

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On site results

Business driver

Business driver

Business driver

Existing Practices

Appraisal Team

The expected probability that the existing practices will negatively impact the success of the projects & the business strategy

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Senior Management Interviews

- Product

- Quality

- Time to market

- Cost

- Other features

CMMI class B appraisal method

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Example Product Questions

- Which units/departments are responsible for selecting and defining the features to be included in a product version?

- Which units/departments are responsible for providing the data/information necessary to make this selection/definition of features?

- Who is responsible for validating that the product definition is consistent with the business goals?

- Which units/departments are responsible for collecting and providing customers feedback and views?

- Which units/departments are responsible for managing product development? e.g. work split, synchronization of activities, allocation of resources, commitments etc.

- Which units/departments are responsible for developing the product and ensuring that it meets the needs?
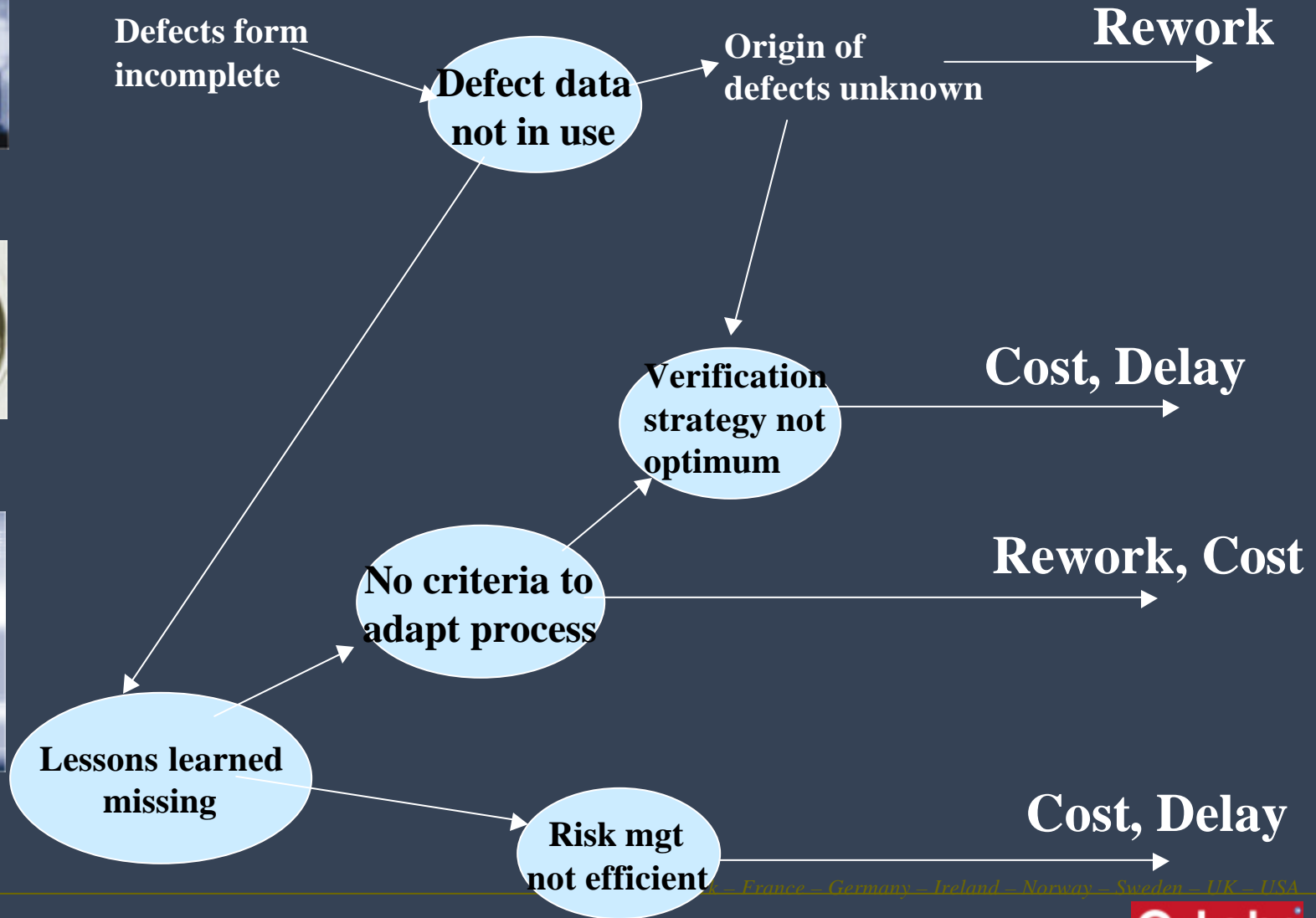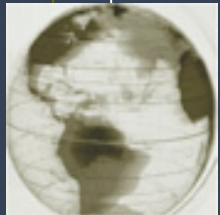
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Quality/cost/TTM example Questions

■ Who is responsible for establishing the R&D strategy for meeting the is goal?

■ Which units are responsible for performing the work needed to support the strategy?

■ Which units are responsible for checking that the output is consistent with the strategy and the goal?

■ Which units are responsible for analyzing past experiences and lessons learned?

■ Who is responsible for proposing/deciding new technologies, investments, techniques and tools?

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A Final Question

■ Is there anyone upon whom this unit/department/project is dependent for successfully meeting its goals?

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Defects form incomplete

Defect data not in use

Origin of defects unknown

Rework

Verification strategy not optimum

Cost, Delay

No criteria to adapt process

Rework, Cost

Lessons learned missing

Risk mgt not efficient

Cost, Delay

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Checkpointing judgment

- **Information is consolidated: a project document is presented to explain the process**

- **Commitments are visible (open discussion)**

- **Processes have improved (open discussion)**

- **PA goals are met with qualitatively assessed risks (high/medium/low)**

- **Consensus is reached among the team members and justified**

A certain level of confidence
Business performance understood and tracked

CMMI class B appraisal method

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Conclusion

- Checkpointing
  - **has both a business and process focus**
  - **makes visible the impact of process weaknesses on the business performance**
  - **can be used with both the staged and continuous representation**

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